

EXPRESS MAIL NO. EL669106872US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Present Application

Applicants : Kenneth H. Abbott et al.
Filed : July 16, 2001
For : THEMATIC RESPONSE TO A COMPUTER USER'S
CONTEXT, SUCH AS BY A WEARABLE PERSONAL
COMPUTER
Docket No. : 294438008US4

Prior Application

Application No. : 09/825,159
Filed : April 2, 2001
Art Unit : 2173

Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Sir:

Please amend the application as follows:

In the Specification:

Please replace the paragraphs beginning at lines 4 and 14 of page 1 with the following paragraphs, respectively.

This application is a continuation of U.S. Patent Application No. 09/825,159, filed April 2, 2001 and currently pending. U.S. Patent Application No.

09/825,159 is a continuation-in-part of U.S. Patent Application No. 09/216,193 (Attorney Docket No. 29443-8001), filed December 18, 1998 and entitled "Method and System for Controlling Presentation of Information to a User Based on the User's Condition"; of U.S. Patent Application No. 09/464,659 (Attorney Docket No. 29443-8003), filed December 15, 1999 and entitled "Storing and Recalling Information to Augment Human Memories"; and of U.S. Patent Application No. 09/724,902 (Attorney Docket No. 29443-8002), filed November 28, 2000 and entitled "Dynamically Exchanging Computer User's Context," which claims the benefit of provisional U.S. Patent Application No. 60/194,006 filed April 2, 2000, each of which are hereby incorporated by reference in their entirety.

U.S. Patent Application No. 09/825,159 also claims the benefit of provisional U.S. Patent Application No. 60/193,999 (Attorney Docket # 29443-8008), filed April 2, 2000 and entitled "Obtaining And Using Contextual Data For Selected Tasks Or Scenarios, Such As For A Wearable Personal Computer," and of provisional U.S. Patent Application No. 60/194,123 (Attorney Docket # 29443-8024), filed April 2, 2000 and entitled "Supplying And Consuming User Context Data," both of which are hereby incorporated by reference in their entirety.

In the Claims:

Please cancel claims 1-133.

Please add the following new claims:

134. (New) A method for presenting information to a user of a wearable computing device based on at least one of multiple defined themes having defined relationships, a current context of the user being represented by a plurality of context attributes that each model an aspect of the context, each of the defined themes modeling a distinct contextual situation of the user that has multiple contextual aspects and each having associated information to be presented to the user when the modeled contextual situation of the theme matches a current contextual situation of the user, the modeling of

a contextual situation by specifying multiple context attributes and by specifying one or more possible values associated with each of the specified context attributes, comprising:

receiving an indication of the multiple defined themes;

receiving an indication of a current contextual situation of the user including current values for each of the plurality of context attributes;

determining at least two of the multiple defined themes that model contextual situations matching the current contextual situation in such a manner that for each of the determined themes, the included current values for each of the context attributes specified for that theme matches one of the specified possible values associated with that context attribute;

determining one or more previously defined relationships that exist between at least some of the multiple determined themes;

determining one of the multiple determined themes having a highest priority based on the one or more determined relationships of that one theme to at least some of the other determined themes; and

presenting to the user the associated information for the one determined theme,

so that the user receives information that is appropriate to a contextual situation in which the user is situated.

135. (New) The method of claim 134 wherein the determined relationships include at least some of the determined themes being hierarchically related to other of the determined themes, and wherein the one theme is determined to have the highest priority based on a position of the one theme within one of the hierarchical relationships.

136. (New) The method of claim 135 wherein the one hierarchical relationship represents specificity of themes such that themes at one level of the hierarchy are more specific than themes at a next level of the hierarchy, and wherein the position of

the one theme within the one hierarchical relationship is such that the one theme is a most specific of the determined themes.

137. (New) The method of claim 135 wherein the one hierarchical relationship represents specificity of themes such that themes at one level of the hierarchy are more specific than themes at a next level of the hierarchy, and wherein the position of the one theme within the one hierarchical relationship is such that the one theme is a least specific of the determined themes.

138. (New) The method of claim 135 wherein themes at one level of a hierarchy based on the one hierarchical relationship have different priorities than themes at a next level of the hierarchy, and wherein the one determined theme is determined to have the highest priority based on the position of the one theme within the one hierarchical relationship being at a level having a higher priority than the levels of the other determined themes.

139. (New) The method of claim 134 wherein the determined relationships between at least some of the multiple determined themes include at least some of the determined themes having one or more associated theme categories, and wherein the one theme is determined based on a theme category associated with the one theme.

140. (New) The method of claim 139 wherein each of the theme categories has an associated priority, and wherein the one determined theme is determined to have the highest priority based on having an associated theme category with a higher priority than the theme categories associated with the other determined themes.

141. (New) The method of claim 134 wherein the determined relationships include at least some of the determined themes being members of one or

more groups of related themes, and wherein the one theme is determined based on being a member of one of the groups.

142. (New) The method of claim 141 wherein each of the groups has an associated priority, and wherein the one determined theme is determined to have the highest priority based on being a member of a group with a higher priority than the groups for which the other determined themes are members.

143. (New) The method of claim 134 wherein the determined relationships between at least some of the multiple determined themes are based on relationships between the contextual situations modeled by the themes.

144. (New) The method of claim 134 including, before the determining of the multiple defined themes that model contextual situations matching the current contextual situation, defining the relationships that exists between the multiple determined themes.

145. (New) The method of claim 134 including, before the receiving of the indication of the multiple defined themes:

defining a new theme based on indications received from the user; and

defining at least one relationship of the new defined theme to other defined themes,

and wherein the new defined theme is one of the indicated multiple defined themes.

146. (New) The method of claim 134 including, before the receiving of the indication of the multiple defined themes, receiving one of the multiple defined themes from another computing device and defining at least one relationship of the received defined theme to other defined themes.

147. (New) The method of claim 134 including monitoring the user of the wearable computing device or a surrounding environment of that user in order to produce the included current context attribute values of the current contextual situation.

148. (New) The method of claim 134 wherein the one defined theme has an associated theme layout that specifies information appropriate to the contextual situation modeled by that theme and that specifies a manner of presenting the specified information, and wherein the presenting of the associated information includes presenting the appropriate information in the specified manner.

149. (New) A computer-implemented method for distributing themes to one or more computing devices for use by those computing devices in providing responses that are appropriate to contextual situations, the method comprising:

receiving an indication of at least one accessible theme, each of the accessible themes representing a contextual situation and associated with a type of response that is appropriate to the represented contextual situation, each of the contextual situations represented with multiple context attributes related to that contextual situation and with criteria for determining values of those context attributes that match that contextual situation;

receiving an indication of at least one computing device; and

for each of the indicated computing devices,

identifying at least one of the accessible themes as being appropriate for that computing device based on relationship information associated with that theme that indicates a relationship to other themes; and

distributing each of the identified themes to that computing device for use by that computing device in providing the type of response associated with that identified theme when the contextual situation represented by that identified theme occurs.

150. (New) The method of claim 149 wherein the relationship of each of the identified accessible themes to other themes is a hierarchical relationship.

151. (New) The method of claim 150 wherein the identifying of an accessible theme as being appropriate is based on a position of that theme within the hierarchical relationship of that theme to other themes.

152. (New) The method of claim 150 wherein the hierarchical relationship of one of the identified accessible themes to other themes is based on degrees of specificity of the themes that are part of the hierarchical relationship, and wherein the one accessible theme is identified as appropriate based on the degree of specificity of the one accessible theme.

153. (New) The method of claim 150 wherein the hierarchical relationship of one of the identified accessible themes to other themes is based on priorities of the themes that are part of the hierarchical relationship, and wherein the one accessible theme is identified as appropriate based on the priority of the one accessible theme.

154. (New) The method of claim 150 wherein one of the identified accessible themes that is part of a first hierarchical relationship inherits information from other themes that are part of the first hierarchical relationship based on a position of the one accessible theme within the first hierarchical relationship, and wherein the distributing of the one accessible theme includes distributing the inherited information.

155. (New) The method of claim 154 wherein the inherited information includes at least one of the context attributes for the contextual situation represented by the one accessible theme.

156. (New) The method of claim 154 wherein the inherited information includes at least some of the criteria for determining values of the context attribute for the contextual situation represented by the one accessible theme.

157. (New) The method of claim 154 wherein the inherited information includes the type of response associated with the one accessible theme.

158. (New) The method of claim 149 wherein the relationship of each of the identified accessible themes to other themes is a category associated with the accessible theme and with the related other themes.

159. (New) The method of claim 158 wherein the identifying of an accessible theme as being appropriate is based on a category of that theme.

160. (New) The method of claim 158 wherein the category associated with one of the identified accessible themes is one of a group comprising entertainment, convenience, productivity, and safety.

161. (New) The method of claim 158 wherein the category associated with one of the identified accessible themes is one of a group comprising categories related to people, categories related to objects, categories related to locations, and categories related to situations.

162. (New) The method of claim 158 wherein the category associated with one of the identified accessible themes is related to content of information provided by the themes that are part of the category.

163. (New) The method of claim 158 wherein the category associated with one of the identified accessible themes is related to types of intentions of users to which the themes that are part of the category provide their associated responses.

164. (New) The method of claim 158 wherein the category associated with one of the identified accessible themes is related to abilities of users to which the themes that are part of the category provide their associated responses.

165. (New) The method of claim 158 wherein the category associated with one of the identified accessible themes is related to computing devices that use the themes that are part of the category to provide the associated responses.

166. (New) The method of claim 158 wherein the category associated with one of the identified accessible themes is related to personal preferences of users to which the themes that are part of the category provide their associated responses.

167. (New) The method of claim 158 wherein the categories have associated priorities, and wherein the identifying of an accessible theme as appropriate is based on the priority of the category of that theme.

168. (New) The method of claim 149 wherein the relationship of each of the identified accessible themes to other themes involves being a member of a group of related themes that includes those other themes as members.

169. (New) The method of claim 168 wherein the identifying of an accessible theme as being appropriate is based on that theme being a member of a group.

170. (New) The method of claim 168 wherein one of the identified accessible themes is a member of a group of related themes that correspond to a group to users such that the responses associated with the group member themes are appropriate to be provided to those users.

171. (New) The method of claim 170 wherein the group of users are employees of an employer.

172. (New) The method of claim 170 wherein the group of users are customers of a retailer.

173. (New) The method of claim 170 wherein the group of users are users in a common geographic location.

174. (New) The method of claim 170 wherein the group of users are users engaged in a common activity.

175. (New) The method of claim 168 wherein the groups have associated priorities, and wherein the identifying of an accessible theme as being appropriate is based on the priority of the group of which that theme is a member.

176. (New) The method of claim 149 wherein the relationship of each of the identified accessible themes to other themes involves relationships between the contextual situations represented by those themes.

177. (New) The method of claim 149 wherein the relationship of each of the identified accessible themes to other themes involves that identified accessible theme being composed of a combination of at least portions of those other themes.

178. (New) The method of claim 149 wherein multiple accessible themes are identified as appropriate, and wherein the identifying of the multiple accessible themes includes identifying a first of the multiple accessible themes as appropriate and identifying the other multiple accessible themes based on a relationship of the first accessible theme to the other accessible themes.

179. (New) The method of claim 149 including, before the identifying of the accessible themes, associating the relationship information for each of the identified accessible themes with that theme.

180. (New) The method of claim 149 including, before the receiving of the indication of the accessible themes, defining at least one of the identified accessible themes based on received indications and associating the relationship information for that theme with that theme.

181. (New) The method of claim 149 wherein the receiving of the indication of the accessible themes includes receiving those themes from another computing device, and including associating relationship information with each of the received themes.

182. (New) The method of claim 149 wherein the identifying of the accessible themes includes determining the relationship information for each of the identified accessible themes and associating the determined relationship information with those themes.

183. (New) The method of claim 149 wherein the received indication of a computing device includes an indication of a contextual situation related to that computing device, and wherein the identifying of a theme as being appropriate for that computing device includes identifying themes that represent contextual situations that are related to the indicated contextual situation.

184. (New) The method of claim 149 wherein the received indication of a computing device includes an indication of a user of that computing device, and wherein the identifying of a theme as being appropriate for that computing device includes identifying themes having an associated type of response that is appropriate for the indicated user.

185. (New) The method of claim 149 wherein the distributing of one of the identified accessible themes includes distributing a theme layout associated with that

theme that specifies information to be presented to a user of a computing device that is using the distributed theme layout.

186. (New) The method of claim 149 wherein the distributing of one of the identified accessible themes includes distributing the other themes to which that theme is related.

187. (New) The method of claim 149 wherein at least one of the context attributes for one of the identified accessible themes represents information about a user of a computing device using that theme.

188. (New) The method of claim 149 wherein at least one of the context attributes for one of the identified accessible themes represents information about a computing device using that theme.

189. (New) The method of claim 149 wherein at least one of the context attributes for one of the identified accessible themes represents information about a physical environment.

190. (New) The method of claim 149 wherein at least one of the context attributes for one of the identified accessible themes represents information about a cyber-environment of a user of a computing device.

191. (New) The method of claim 149 including receiving indications of multiple computing devices having users that are members of a group, and distributing at least one accessible theme that is identified as being appropriate for that group to each of the computing devices.

192. (New) A computer-readable medium whose contents cause a computing device to distribute themes to one or more other computing devices for use in

providing responses that are appropriate to contextual situations, by performing a method comprising:

receiving an indication of at least one accessible theme, each of the accessible themes representing a contextual situation and associated with a type of response that is appropriate to the represented contextual situation; and

for each of at least one computing device,

identifying at least one of the accessible themes as being appropriate for that computing device based on relationship information associated with that theme that indicates a relationship to other themes; and

distributing each of the identified themes to that computing device for use by that computing device in providing the type of response associated with that identified theme when the contextual situation represented by that identified theme occurs.

193. (New) The computer-readable medium of claim 192 wherein the computer-readable medium is a data transmission medium transmitting a generated data signal containing the contents.

194. (New) The computer-readable medium of claim 192 wherein the computer-readable medium is a memory of a computer system.

195. (New) A computing device for distributing themes to one or more other computing devices for use in providing responses that are appropriate to contextual situations, comprising:

an input component capable of receiving an indication of at least one accessible theme, each of the accessible themes representing a contextual situation and associated with a type of response that is appropriate to the represented contextual situation, each of the contextual situations represented with multiple context attributes related to that contextual situation and with criteria for determining values of those context attributes that match that contextual situation; and

a theme distribution component capable of, for an indicated computing device, identifying at least one of the accessible themes as being appropriate for that computing device based on relationship information associated with that theme that indicates a relationship to other themes and distributing the identified themes to that computing device for use in providing the type of response associated with an identified theme when the contextual situation represented by that identified theme occurs.

196. (New) The computing device of claim 195 wherein the input component and theme distribution component are executing in memory of the computing device.

197. (New) The computing device of claim 195 wherein the computing device is a wearable computer.

198. (New) A computer system for distributing themes to one or more computing devices for use by those computing devices in providing responses that are appropriate to contextual situations, comprising:

means for receiving an indication of at least one accessible theme, each of the accessible themes representing a contextual situation and associated with a type of response that is appropriate to the represented contextual situation, each of the contextual situations represented with multiple context attributes related to that contextual situation and with criteria for determining values of those context attributes that match that contextual situation; and

means for identifying at least one of the accessible themes as being appropriate for a computing device based on relationship information associated with that theme that indicates a relationship to other themes and distributing each of the identified themes to that computing device for use by that computing device in providing the type of response associated with that identified theme when the contextual situation represented by that identified theme occurs.

199. (New) A method for providing to a user of a portable computing device an appropriate response to a contextual situation based on multiple categories of themes, the method comprising:

receiving an indication of multiple theme categories that each correspond to distinct types of contextual situations, each of the theme categories having multiple associated themes each associated with a type of response that is appropriate to the corresponding type of contextual situation for that theme category;

receiving an indication of a current contextual situation of the user;

selecting one of the categories of themes based on the current contextual situation being of a type to which the selected category of themes corresponds;

identifying one of the multiple themes of the selected category whose associated type of response is appropriate to the current contextual situation; and

providing the associated type of response for the identified theme to the user.

200. (New) The method of claim 199 wherein each of the themes includes indications of multiple context attributes and criteria for determining matching values of those context attributes, wherein the current contextual situation includes current values for at least some of the context attributes, and wherein the identifying of the one theme is based on the included current values of the current contextual situation containing values for the indicated context attributes for the one theme that the indicated criteria for the one theme determines to be matching values.

201. (New) The method of claim 199 wherein the identifying of the one theme is based on a priority that is determined for the one theme.

202. (New) The method of claim 199 wherein the provided type of response includes presenting information to the user that is appropriate to the current contextual situation.

203. (New) The method of claim 199 including identifying multiple of the themes of the selected category whose associated type of response is appropriate to the current contextual situation, and providing the associated type of response for each of the identified themes.

204. (New) The method of claim 199 including selecting multiple categories of themes based on the current contextual situation being of a type to which each of the selected categories of themes corresponds, and providing for at least one of the themes for each of the selected categories the type of response associated with that theme.

205. (New) A computer-readable medium containing instructions that when executed cause a computing device to provide an appropriate response to a contextual situation based on multiple categories of themes, by performing a method comprising:

receiving an indication of multiple theme categories that each correspond to types of contextual situations, each of the theme categories having multiple associated themes each associated with a type of response that is appropriate to the corresponding type of contextual situation for that theme category;

receiving an indication of a current contextual situation;

selecting one of the categories of themes based on the current contextual situation being of a type to which the selected category of themes corresponds;

identifying one of the multiple themes of the selected category whose associated type of response is appropriate to the current contextual situation; and

providing the associated type of response for the identified theme.

206. (New) A portable computing device for providing to a user an appropriate response to a contextual situation based on multiple categories of themes, comprising:

an input component capable of receiving an indication of multiple theme categories that each correspond to types of contextual situations, each of the theme categories having multiple associated themes each associated with a type of response that is appropriate to the corresponding type of contextual situation for that theme category, and of receiving an indication of a current contextual situation of the user; and

a theme response component capable of selecting one of the categories of themes based on the current contextual situation being of a type to which the selected category of themes corresponds, of identifying one of the multiple themes of the selected category whose associated type of response is appropriate to the current contextual situation, and of providing the associated type of response for the identified theme to the user.

207. (New) A method in a computing device for providing to a user an appropriate response to a contextual situation based on multiple groups of themes, the method comprising:

receiving an indication of multiple theme groups that each correspond to distinct types of users, each of the theme groups having multiple themes as members that are each associated with a type of response that is appropriate to the corresponding type of user for that theme group;

receiving an indication of a current user;

selecting one of the groups of themes based on the current user being of a type to which the selected group of themes corresponds;

identifying one or more of the multiple themes of the selected group whose associated type of response is appropriate to the current user; and

providing the associated types of response for the identified themes to the current user.

208. (New) The method of claim 207 wherein the received indication of the current user includes an indication of a current contextual situation of the user, and wherein the identifying of the one or more themes is based on the indicated current contextual situation.

209. (New) The method of claim 208 wherein each of the themes includes indications of multiple context attributes and criteria for determining matching values of those context attributes, wherein the current contextual situation includes current values for at least some of the context attributes, and wherein the identifying of the one or more themes is based on the included current values of the current contextual situation containing values for the indicated context attributes for each of those themes that the indicated criteria for that theme determines to be matching values.

210. (New) The method of claim 207 wherein the identifying of the one or more themes is based on priorities that are determined for each of those themes.

211. (New) The method of claim 207 wherein the provided types of response each include presenting information to the user.

212. (New) The method of claim 207 including selecting multiple groups of themes based on the current user being of a type to which each of the selected groups of themes corresponds, and providing for at least one of the themes for each of the selected groups the type of response associated with that theme.

213. (New) The method of claim 207 including receiving indications of multiple users, and wherein the selecting of one of the multiple groups of themes is further based on all of the indicated multiple users belonging to a group of users to which the selected group of themes corresponds.

214. (New) A method in a computing device for providing to a user an appropriate response to a contextual situation based on multiple themes that are hierarchically related, the method comprising:

receiving an indication of multiple themes that each correspond to types of contextual situations and that are each associated with a type of response that is appropriate to that corresponding type of contextual situation, each of the themes being hierarchically related to other of the multiple themes;

receiving an indication of a current contextual situation of the user;

identifying multiple of the indicated themes such that the current contextual situation is of a type to which those identified themes correspond;

selecting one of the identified themes based on the hierarchical relationship of that theme to other of the multiple themes; and

providing the associated type of response for the selected theme to the user.

215. (New) The method of claim 214 wherein each of the themes includes indications of multiple context attributes and criteria for determining matching values of those context attributes, wherein the current contextual situation includes current values for at least some of the context attributes, and wherein the identifying of the multiple themes is based on the included current values of the current contextual situation containing values for the indicated context attributes for each of the identified themes that the indicated criteria for that theme determines to be matching values.

216. (New) The method of claim 214 wherein the selecting of the one theme is based on a priority that is determined for the one theme based on the hierarchical relationship.

217. (New) The method of claim 214 wherein the provided type of response includes presenting information to the user that is appropriate to the current contextual situation.

218. (New) The method of claim 214 including selecting multiple of the identified themes based on the hierarchical relationships of those themes to other of the multiple themes, and providing the associated type of response for each of the selected themes.

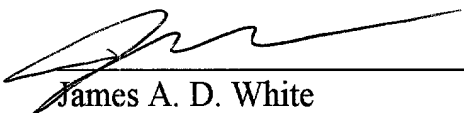
219. (New) The method of claim 214 wherein the hierarchical relationship of the selected one theme to the other themes is based on degrees of specificity of the themes that are part of the hierarchical relationship, and wherein the one theme is selected based on the degree of specificity of the one theme.

REMARKS

Applicants have added claims 134-219 in order to clarify the subject matter of their invention, and have also canceled claims 1-133. Thus, claims 134-219 are now pending.

Applicants respectfully request consideration of this application and its early allowance.

Respectfully submitted,
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APPENDIX – SPECIFICATION
MARKED TO SHOW CHANGES

Paragraphs beginning at Page 1, lines 4 and 14, respectively:

This application is a continuation of U.S. Patent Application No. 09/825,159, filed April 2, 2001 and currently pending. U.S. Patent Application No. 09/825,159 [This application] is a continuation-in-part of U.S. Patent Application No. 09/216,193 (Attorney Docket No. 29443-8001), filed December 18, 1998 and entitled “Method and System for Controlling Presentation of Information to a User Based on the User’s Condition”; of U.S. Patent Application No. 09/464,659 (Attorney Docket No. 29443-8003), filed December 15, 1999 and entitled “Storing and Recalling Information to Augment Human Memories”; and of U.S. Patent Application No. 09/724,902 (Attorney Docket No. 29443-8002), filed November 28, 2000 and entitled “Dynamically Exchanging Computer User's Context,” which claims the benefit of provisional U.S. Patent Application No. 60/194,006 filed April 2, 2000, each of which [. Each of these applications] are hereby incorporated by reference in their entirety.

U.S. Patent Application No. 09/825,159 [This application] also claims the benefit of provisional U.S. Patent Application No. 60/193,999 (Attorney Docket # 29443-8008), filed April 2, 2000 and entitled “Obtaining And Using Contextual Data For Selected Tasks Or Scenarios, Such As For A Wearable Personal Computer,” and of provisional U.S. Patent Application No. 60/194,123 (Attorney Docket # 29443-8024), filed April 2, 2000 and entitled “Supplying And Consuming User Context Data,” both of which are hereby incorporated by reference in their entirety.